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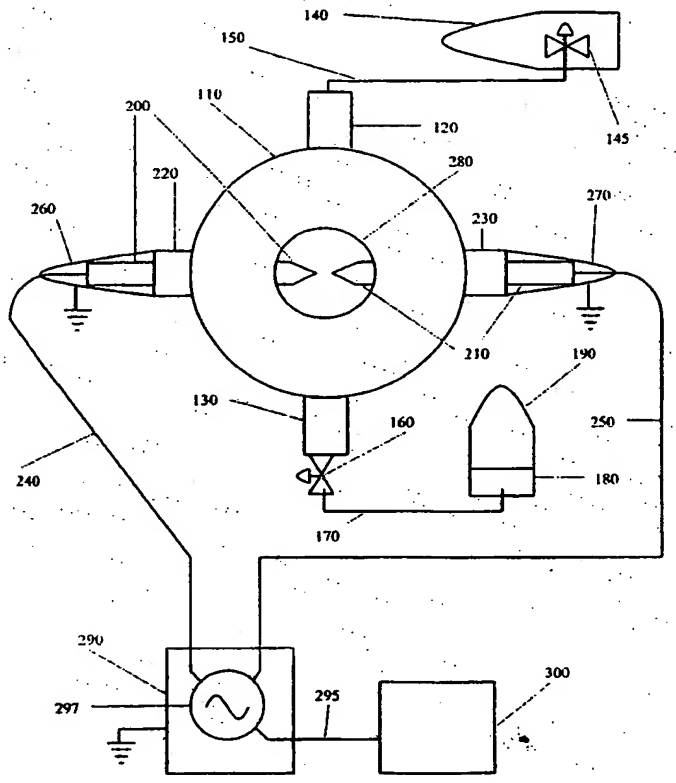

(57) Abstract: A method and apparatus are provided for generating light such as ultraviolet light from excimer-forming gases. Gases are excited by radio frequency alternating current powered electrodes (200, 210) to form excimers that will decay and emit vacuum ultraviolet light. The halogen concentration is optimized so as to optimize emissions from halogen excimers (Z_2*) or mixed rare gas/halogen excimers (RGZ*). Emissions from rare gas excimers (RG_2*) are maximized by maintaining the gas in the discharge region at a relatively low temperature, desirably below 700 °K, so that the average kinetic energy of gas particles is less than the vibrational excitation energy of the excimer and substantially less than the dissociation energy of the excimer. Relatively large electrodes (202, 204) can be used to cool the plasma.

WO 2005/015697 A2

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